

In the Claims

Please amend the claims as follow:

1. (currently amended) A method of fabricating a damascene structure, comprising:
providing a substrate;
forming a dielectric layer on the substrate;
defining the dielectric layer to form an opening, wherein a portion of the substrate is exposed by the opening;
forming a barrier layer conformal to a profile of the opening;
forming a metal layer over the substrate, wherein the metal layer fills the opening and covers the dielectric layer;
performing a first chemical mechanical polishing process with a first slurry to remove the metal layer until the barrier layer is exposed; and
performing a second chemical mechanical polishing process with a second slurry and an oxidant solution to remove the barrier layer, wherein the oxidant oxidizes the metal layer and to adjusting a zeta potential of the metal layer with the solution during the removal of the barrier layer.
2. (canceled)
3. (currently amended) The method of claim 21, wherein the oxidant is selected from the group consisting of KIO_3 , H_2O_2 , $Fe(NO_3)_3$, and $(NH_4)_2S_2O_8$.

4. (currently amended) The method of claim 21, wherein a concentration of the oxidant in the slurry is 0.1% to 5%.

5. (currently amended) The method of claim 21, wherein the oxidant is either dissolved into the solution and then mixed with the second slurry from different pipelines on a polishing pad or is added directly to the second slurry.

6. (previously amended) The method of claim 1, wherein the dielectric layer is made of a low-K material and is selected from the group of fluorinated organic polymers consisting of fluorinated hydrocarbon, fluorinated poly arylene ether aromatic polymer and hydrogen silsesquioxane.

7. (previously amended) The method of claim 1, wherein a material of the metal layer is selected from the group consisting of copper, tungsten and aluminum.

8. (previously amended) The method of claim 1, wherein a pH of the second slurry can be neutral.

9. (previously amended) The method of claim 1, wherein a pH of the second slurry can be alkaline.

10. (previously amended) The method of claim 1, where the opening is a dual damascene opening, a trench for a metal conductive line, a via opening for a plug, a contact opening or an opening for a damascene structure.

11. (currently amended) A method of fabricating a damascene structure, comprising:
providing a substrate, wherein the substrate comprises a dielectric layer with an opening on the substrate, a barrier layer conformal to a profile of the opening and a metal layer filling up the opening;

performing a first chemical mechanical polishing process with a first slurry to remove the metal layer; and

performing a second chemical mechanical polishing process with a second slurry that comprises an oxidant for the metal layer, wherein the second slurry that comprises the oxidant to removes a portion of the barrier layer and to adjusts a zeta potential of the metal layer due to a reaction between the metal layer and the oxidant.

12. (previously amended) The method of claim 11, wherein the oxidant is either dissolved into a solution and then mixed with the second slurry from different pipelines on a polishing pad or is added directly to the second slurry.

13. (previously amended) The method of claim 11, wherein the oxidant is selected from the group consisting of KIO_3 , H_2O_2 , $Fe(NO_3)_3$ and $(NH_4)_2S_2O_8$.

14. (original) The method of claim 11, wherein a concentration of the oxidant in the slurry is 0.1% to 0.5%

15. (previously amended) The method of claim 11, wherein a pH of the second slurry can be neutral.

16. (previously amended) The method of claim 11, wherein a pH of the second slurry can be alkaline.

17. (previously amended) The method of claim 11, wherein a material of the metal layer is selected from the group consisting of copper, tungsten and aluminum.

Conc'd

Claims 18-20 (previously canceled)

21. (previously added) The method of claim 1, wherein the second slurry for removing the barrier layer comprises an oxidant, abrasive particles, surfactant, buffer solution, and anti-corrosive.

22. (previously added) The method of claim 11, wherein the second slurry for removing the barrier layer comprises an oxidant, abrasive particles, surfactant, buffer solution and anti-corrosive.